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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003901994 for a patent by MAURICE BAKER as filed on 28 April 2003.

WITNESS my hand this
Seventeenth day of August 2004

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PROVISIONAL SPECIFICATION

APPLICANT: MAURICE BAKER
NUMBER:
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Invention Title: PALLET LOCKING SYSTEM

The invention is described in the following statement:-

PALLET LOCKING SYSTEM

Area of the Invention

This invention relates to the area of sea freight containers, and in particular to pallets for use inside such containers, and a locking mechanism to maintain the pallets in a fixed location within a sea freight container.

Background to the Invention

It is well known for goods which are transported in sea freight containers to be loaded on pallets for ease of handling.

In recent times pallets have been developed of a type which are able to be rolled into and out of such a container. This mobile nature of such pallets can however cause difficulties in relation to their movement within a container when the container is either being moved for transport or, in particular, when the container is on a ship at sea.

Quite clearly a container which is on a ship is subject to a significant degree of movement and so are containers when they are being loaded and unloaded and being transported. Therefore any device, such as a pallet, which is inside the container and which is not securely fixed in a particular position in relation to the container is going to move. This in turn may contribute to problems associated with damage to goods which are being transported on the pallet and, in an extreme event, to damage to the container itself.

Outline of the Invention

It is an object of this invention to provide a locking means for a mobile pallet for use inside a sea freight container where such a pallet is provided with wheels or rollers on which it can be moved.

The invention in one aspect is a means for locking a mobile pallet in position in a sea freight container said locking means consisting of a first component and a second component, wherein the first component is a device located on either side of one end of the pallet adapted to firmly abut adjacent corners of the container and the second component is located at an opposing end of the pallet and is adapted to closely abut the container door means.

It is preferred that the first component include a generally triangular platelike member which is able to pivot about a vertical member at a corner of the pallet and which has a roller device located at an outside extremity of the plate device. It is further preferred that there be such a component at each side of the leading edge of a mobile pallet as it enters a container. It is also preferred that the first component of the locking mechanism include two generally triangular plates mounted on an upper and a lower surface of the pallet such that a roller is held between these pivoting plates.

By this means, when a pallet is being pushed into a container, each plate member will pivot to align one side thereof with a side of the pallet and the roller member will be oriented forward of the pallet. When the roller member contacts a far wall of the container it is forced to pivot around the pivot member until it engages in a corner of the container and thereby holds the pallet in a fixed relationship with the container on either side of the forward part of the pallet;

It is preferred that the second component of the locking system is mounted generally centrally at the rear of the pallet closely adjacent doors of the container

when said doors are closed. It is further preferred that the second component consist of a first member fixedly located on the pallet which interacts with a second member which is rotatable outwardly from the rear of the pallet means until it closely abuts the position of the container doors. It is preferred that such rotation is effected using a ratchet and pawl mechanism.

The combination of the first and second components of the locking system thereby ensures that a pallet inside a sea freight container is held in fixed engagement with the sea freight container.

The invention in another aspect is a means for locking a mobile pallet in position in a sea freight container, where said pallet has a leading end which enters the container and an opposing end between lateral side members, said locking means being associated with the lateral side members adjacent the opposing end and including a body member housing an extensible member such that the extensible member can extend to engage with a wall of the container.

It is preferred that the extensible member be housed in a threaded aperture in the body member and be able to unscrewed from the body member to engage with the container wall and be held in place by lock means.

It is further preferred that the extensible member be held in place in its extended position by a locking screw.

In order that the invention may be more readily understood specific embodiments of the invention will be described by way of non-limiting example.

In a preferred embodiment of the invention a locking system for use on a wheeled pallet which is designed to occupy a sea freight container is provided.

The locking mechanism consists of three basic components. A first component for the locking system is located at the leading edge of the pallet and consists of two identical members on either side of the leading edge of the pallet. This first component consists of two generally parallel and triangularly shaped plates, separated by a roller device, on either side of the leading edge of the pallet, which plates rotate together about a vertical pivot member in each corner of the pallet.

An outside corner of the triangular member is provided with the roller which connects between the upper and a lower triangular plates as previously described.

The arrangement is such that when the pallet is pushed into the container this forward locking member rotates so that an edge of it is parallel to the side of the pallet and the roller device is generally facing forwards.

When the leading edge of the pallet is approaching the rear of the container it is contacted by the roller which then causes the triangular plate members to rotate outwards until the roller locates in a corner of the container. Clearly this will occur on either side of the pallet and, once the roller is in this position, the leading edge of the pallet will be held firmly in a fixed relationship with the rear of the container.

The second component of the locking mechanism is located inside the rear of the pallet which is constructed from C shaped channel. This part of the locking mechanism includes a fixed member which is positioned inside the C channel and a toothed circular member which is able to rotate outwardly from the rear of the pallet and is held in any given position by means of a pawl associated with the first fixed part of this locking mechanism.

The presumption here is that no pallet would be an exact fit inside a container even if it was designed specifically for that container on the basis that it would otherwise be difficult to move it in and out of the container.

As previously described the front roller members are used to locate the front corners of the pallet in fixed position with respect to the corners of the rear of the container. Clearly there will be some gap between the rear of the pallet and the closed doors of the container and the rear locking mechanism is designed to occupy this gap such that the toothed component of this locking mechanism can be rotated out to the position of closure of the container doors.

In the particular embodiment of the invention described it is envisaged that the toothed component would in fact consist of two coincident toothed members with their teeth slightly offset to provide fine adjustment of the position of this member as it is rotated outwards.

As described herein, in this embodiment of the invention a locking mechanism for a mobile pallet which is used in a sea freight container is provided, which locking mechanism has means to fix the corners of the leading edge of the pallet into the corners of the rear of the container and also has means at the rear of the pallet to firmly abut the container doors and therefore prevent the pallet from moving inside the container during transport.

A third component of a pallet locking system is able to fix the sides of the pallet relative to adjacent container walls and is positioned on either side of the pallet near the end of the pallet which is opposed to the leading edge of the pallet.

This locking means has a body member attached to the rear side of a pallet, which body member has a threaded aperture through it into and out of which an extension member can be screwed. The extension member is provided with an

outer end portion adapted to engage with a recess in the container wall and this is screwed into place and held there by means of a locking nut.

By this means it is possible to fix an end of a mobile pallet to the container wall posts without the need for the pallet to be the same length as the container. It is therefore possible for example for two pallets suitable for 20' containers to be loaded into a 40' container as the extra space in the 40' container can be accommodated while still securing the pallets in the container.

Whatever arrangement is used it is a simple matter to unscrew the lock nut and the extension member to unlock this locking means when required.

This embodiment of the invention is not however limiting in the invention as the invention lies in the provision of a releasable extendable device which can fix a side of a pallet to a container wall while providing easy access to this device.

Apart from the general requirements as to strength which would be self evident any appropriate materials can be used for the construction of the components of this locking mechanism. In a preferred embodiment of the invention presumably these would be generally manufactured from strong metal products however the material of the rollers could be of some shock absorbing nature if that was desired.

Whilst particular embodiments of the invention have been described herein it is to be understood that variations and modifications in the features described, and combinations thereof, and the materials used can still lie within the scope of the invention.

DATED this 28 day of April, 2003

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By His Patent Attorneys
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